

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

1. (Currently amended) A vector comprising from 5' to 3':

a) a packaging sequence;

b) a heterologous insert sequence or restriction sites for insertion of a heterologous sequence; and

c) a 3' long terminal repeat (LTR) sequence comprising a proviral recovery sequence selected from the group consisting of at least one recombinase site, at least one rare cutter restriction site and combinations thereof,

wherein at least two codons of the packaging sequence are altered so as to reduce formation of fusion polypeptides encoded by the packaging sequence or a portion thereof, and the heterologous insert sequence.

2. (Original) The vector of claim 1, wherein at least two ATG codons of the packaging sequence have been altered.

3. (Original) The vector of claim 2, wherein the ATG initiation codon of the packaging sequence and at least one internal ATG codon of the packaging sequence have been altered.

4. (Original) The vector of claim 1, wherein the packaging sequence is a *gag* sequence.

5. (Original) The vector of claim 4, wherein the *gag* sequence is an amino-terminal portion of the *gag* gene.

6. (Original) The vector of claim 4, wherein the gag sequence comprises the nucleotide sequence of SEQ ID NO:2, or a portion thereof.

7. (Original) The vector of claim 3, wherein at least two internal ATG codons of the packaging sequence have been altered.

8. (Original) The vector of claim 3, wherein the internal codon which is altered is the codon at residues 1097-1099 of SEQ ID NO:1.

9. (Original) The vector of claim 3, wherein the internal codon which is altered is the codon at residues 1589-1591 of SEQ ID NO:1.

10. (Original) The vector of claim 3, wherein the internal codon at residues 1097-1099 and the internal codon at residues 1589-1591 of SEQ ID NO:1 have been altered.

11. (Original) The vector of claim 2, wherein one, two or all of the nucleotides of the ATG codon(s) have been altered.

12. (Original) The vector of claim 1, wherein the vector includes a heterologous insert sequence.

13. (Currently amended) A vector comprising from 5' to 3':  
a) a packaging sequence, wherein at least one ATG codon of the packaging sequence has been altered;  
b) a heterologous insert sequence or restriction sites for insertion of a heterologous sequence; and

c) a 3' LTR sequence, ~~wherein the 3' LTR comprises~~ comprising a proviral recovery sequence selected from the group consisting of at least one recombinase site, at least one rare cutter restriction site and combinations thereof.

14.-15 (Cancel)

16. (Original) The vector of claim 13, wherein the packaging sequence is a *gag* sequence.

17. (Original) The vector of claim 16, wherein the *gag* sequence is an amino-terminal portion of the *gag* gene.

18.-22. (Cancel)

23. (Original) The vector of claim 13, wherein the vector includes a heterologous insert sequence.

24. (Currently amended) The ~~viral~~ vector of claim ~~[[13]]~~ 1, further comprising a bacterial replicon ~~origin of replication~~.

25. (Currently amended) The ~~viral~~ vector of claim 24, wherein the bacterial replicon ~~at least a portion of the bacterial origin of replication has been removed~~ is less than 1.6 kb in size.

26. (Currently amended) The ~~viral~~ vector of claim ~~[[13]]~~ 26, wherein the ~~vector~~ bacterial replicon further comprises a selectable bacterial marker sequence ~~is a bleomycin marker sequence.~~

27. (Currently amended) The ~~viral~~ vector of claim ~~[[13]]~~ 1, wherein the proviral recovery sequence is located within a portion of the 3' LTR which duplicates upon integration.

28. (Currently amended) A vector comprising from 5' to 3':

a) a packaging sequence, ~~wherein at least one ATG codon of the packaging sequence has been altered;~~

b) a heterologous insert sequence or restriction sites for insertion of a heterologous sequence;

c) a selectable bacterial marker sequence, wherein the bacterial marker is less than 600 basepairs in length; and

d) a 3' LTR sequence, ~~wherein the 3' LTR comprises~~ comprising a proviral recovery sequence selected from the group consisting of at least one recombinase site, at least one rare cutter restriction site and combinations thereof,

wherein at least two codons of the packaging sequence are altered so as to reduce formation of fusion polypeptides encoded by the packaging sequence or a portion thereof, and the heterologous insert sequence.

29. (Currently amended) A viral vector comprising:

a) a packaging sequence;

b) a heterologous insert sequence;

c) a selectable bacterial marker sequence, wherein the bacterial marker sequence is less than 600 basepairs in length;

d) a 3' LTR comprising a proviral recovery sequence selected from the group consisting of at least one recombinase site, at least one rare cutter restriction site and combinations thereof,

wherein at least two codons of the packaging sequence are altered so as to reduce formation of fusion polypeptides encoded by the packaging sequence or a portion thereof, and the heterologous insert sequence and wherein the vector comprises and can express a heterologous insert sequence greater than about 8 kilobases in length.

41. (New) The viral vector of claim 40, wherein the origin of replication is colEI.
42. (New) The viral vector of claim 41, wherein the selectable bacterial marker is bleomycin.
43. (New) The vector of claim 1, wherein the proviral recovery sequence is at least one recombinase site.
44. (New) The vector of claim 1, wherein the at least one recombinase site is selected from the group consisting of a loxP recombinase site, a flt recombinase site and a loxP511 recombinase site.
45. (New) The vector of claim 1, wherein the proviral sequence is at least one rare cutter restriction site.
46. (New) The vector of claim 45, wherein the at least one rare cutter restriction site is selected from the group consisting of: a NotI site, a SfiI site, a PacI site and a P1-SceI site.
47. (New) The vector of claim 1, wherein the proviral recovery sequence is at least one recombinase site and at least one rare cutter restriction site.
48. (New) The vector of claim 1, wherein the vector is the pEYK2.1 vector.
49. (New) The vector of claim 1, wherein the vector is the pEYK3.1 vector.

30.-32. (Cancel)

33. (Original) The viral vector of claim 29, wherein the bacterial marker sequence is a bleomycin marker sequence.

Please insert the following new claims:

34. (New) The vector of claim 26, wherein the bacterial marker sequence is a bleomycin marker sequence.

35. (New) The vector of claim 25, wherein the bacterial replicon is less than 1.4 kb in size.

36. (New) The vector of claim 35, wherein the bacterial replicon is less than 1.2 kb in size.

37. (New) The viral vector of claim 28 or 29, wherein the selectable bacterial marker is part of a bacterial replicon.

38. (New) The viral vector of claim 37, wherein the bacterial replicon is less than 1.4 kb in size.

39. (New) The viral vector of claim 38, wherein the bacterial replicon is less than 1.2 kb in size.

40. (New) The viral vector of claim 37, wherein the bacterial replicon comprises a origin of replication.